

## Abrading Device

### Technical field

5 The present invention concerns a device for abrading walls of stone or concrete material.

### Technical background

10 It is known that abrading stone and concrete floors gives many advantages including an improvement in the aesthetic impression and in addition an abraded floor is easier to clean and has less tendency to attract dirt than an unabraded floor.

A device for abrading floors is already known for example from WO 02/062524 A1.

15 The removal of graffiti from subway walls etc. is a major problem which can cause society high costs which may be considered unnecessary. The solution to this problem is to be able to abrade such walls.

A known solution for abrading stone and concrete walls is shown in US 2,787,096.

### 20 Summary of the invention

The object of the present invention is to produce a device suitable for abrading stone and concrete walls.

25 The invention is defined by the enclosed independent patent claim. Embodiments arise from the dependent claims and from the following descriptions and drawings.

30 Thus a device is created for abrading a wall of stone or concrete material, which device comprises a shell with which an abrading head is operationally connected, and a carriage intended for movement at least along the surface and to support the shell movably so that the abrading head by movement of the shell can perform an upward and downward abrading movement. The device is distinguished by an abrading head of the type which has a rotatably mounted and driven planet wheel with a number of driven abrading discs mounted rotatably thereon and carrying abrading elements, and

an element for placing the abrading head with a predetermined force against the surface to be abraded.

Brief description of the drawings

5 The invention will be described in more detail below with reference to the enclosed drawings.

Fig. 1 shows in perspective a preferred embodiment of a device according to the invention.

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Figs. 2a - 2b show diagrammatically in perspective the device according to the invention mounted on a forklift truck and ready for abrading a wall surface.

Description of embodiments

15 In fig. 1, numeral 1 generally indicates an abrading head which is operationally connected with a shell generally indicated by 2. The abrading head 1 is of the type which has a rotatably mounted and driven planet wheel 1a with a number of driven abrading discs 1b mounted rotatably thereon. The planet wheel 1a and the abrading discs 1b which are fitted with abrading elements not shown in fig. 1 are driven by  
20 means of a motor 3 which is mechanically coupled to the planet wheel 1a and the abrading discs 1b, for example as described in the above WO publication. As will be explained in connection with fig. 2, the shell 2 is intended to be supported on a carriage e.g. a forklift truck so that the abrading head can be moved over a wall surface to be abraded in a predetermined manner.

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The operative connection between the abrading head 1 and the shell 2 is such that the abrading head and hence the abrading elements can be placed against the surface with a predetermined force which is required for a good abrasion result and effective abrasion. For this purpose the said operational connection has a universal mounting  
30 for the abrading head 1 in the shell 2, i.e. the abrading head 1 automatically lies flat against the surface to be abraded. The universal mounting is of the conventional type; 4 indicates a frame in the universal mounting. To compensate for the weight of the abrading head 1 a counterweight 5 is provided to balance the abrading head 1.

To achieve the correct contact force against the surface to be abraded, the operational connection between the abrading head 1 and the shell 2 comprises an element provided to achieve said contact force. There are many alternative possibilities for implementing such an element; one possibility is to utilise a hydraulic cylinder/piston device, the hydraulic pressure of which is controlled so that the desired contact force is achieved. Another possibility is illustrated in fig. 1; here gas springs 6 are used to achieve the contact force. Such gas springs naturally do not have the ability to absorb lateral forces i.e. forces with a component transverse to the direction of the contact force. Elements to absorb the lateral force are the pipe 7a connected with the shell 2 and rods 7b telescoping in said tube and connected with the abrading head 1.

An essential condition for the above is naturally that the shell 2 is held fixed in the direction of the contact force. This is achieved with a carriage supporting the shell 2 e.g. a forklift truck 8, whereby the shell 2 is supported by the forks 8a of the truck 8. This achieves the advantage that the abrasion can be performed during the lifting and lowering of the forks, where in between the truck moves so that a surface area not previously machined is subjected to abrasion.

Fig. 2a illustrates how the device according to the invention is mounted in a first alternative so that the truck 8 can be moved towards and away from a surface to be abraded. This design is utilised above all in narrow spaces. If there is sufficient space to move the truck 8 parallel to the surface during the abrasion, the design in 2b is preferred.

It can be seen that the device according to the invention, using a turntable by means of which the abrading head can be angled upwards, can also be used for abrading a roof surface.